REPORT TITLE: CLIMATE ADAPTATION

2 DECEMBER 2025

REPORT OF CABINET MEMBER: Councillor Kelsie Learney, Cabinet Member for the Climate and Nature Emergency

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WARD(S): ALL WARDS

PURPOSE

Tackling the climate emergency is the overarching priority for the council; the council has set an ambitious target of becoming a carbon neutral district by 2030. However, the Carbon Neutrality Action Plan (CNAP) does not address climate adaptation nor include any measures to prepare for current or future impacts of climate change across the district.

Climate adaptation is key to managing and reducing vulnerability to current and future impacts of climate change. The Sustainability team are currently developing a Climate Risk and Vulnerability Assessment (CRVA) which assesses the ways in which the council may be impacted by climate risks and hazards, as well as residents, communities, businesses, and infrastructure beyond the council's direct control.

The purpose of this report is to provide a progress update on the council's climate adaptation work and invite the HEP Committee to provide feedback to inform and shape the process of developing the CRVA.

RECOMMENDATIONS:

The HEP Committee are asked to provide feedback on the following areas which will help to inform and shape the Winchester district CRVA:

1. Which climate risks do you believe will have the greatest impact on the Winchester district?
2. Which council services do you believe will be most impacted by climate change in the future?
3. Which residents, communities and businesses are the most vulnerable to climate hazards such as flooding, heatwaves etc.?
4. Are there any other key external stakeholders that we should engage with to inform the assessment?

1 RESOURCE IMPLICATIONS

1.1 The Climate Risk and Vulnerability Assessment (CRVA) is being developed by the Sustainability team, with input from officers throughout the council. There is sufficient resource in place within the team to deliver the CRVA. The assessment will be used to inform the council's approach to planning for and or implementing any adaption measures. The budget for any such measures will need to be approved following the council's normal governance procedures.

2. SUPPORTING INFORMATION:

2.1. Background

Strategic context

2.2. Global average temperatures have increased at an unprecedented rate since pre-industrial times, driven by a rise in greenhouse gas emissions which is causing climate change. Tackling climate change requires implementing measures that address both mitigation and adaptation[1]. While mitigation has historically been the focus of much action, adaptation is increasingly recognised as necessary to manage climate change. Even if global targets to limit global warming are reached, there is scientific consensus that there will still be significant changes to the climate that require adaptation.

2.3. The Climate Change Act 2008 sets out the requirement for the UK government to cut greenhouse gas emissions and achieve net zero by 2050. It also requires the government to conduct a Climate Change Risk Assessment (CCRA) every five years to identify climate risks, followed by a National Adaptation Programme (NAP) to address these risks. The NAP recognises the vital role that local government plays in climate adaptation and ensuring that local service delivery is resilient to the impacts of the changing climate.

2.4. Climate adaptation is key to managing and reducing vulnerability to current and future impacts of climate change. This includes impacts from increasing temperatures, precipitation, flooding, storms, and more frequent extreme weather events. Adaptation needs to happen at a local level as local authorities play a crucial role in delivering public services and ensuring local businesses, residents, infrastructure, and the natural environment are resilient to the impacts of climate change.

2.5. Tackling the climate emergency and going greener faster is the overarching priority of the council. The council's Carbon Neutrality Action Plan (CNAP) sets out how the council will reduce carbon emissions across the council and the wider district. However, the CNAP does not address climate adaptation

[1] Climate change mitigation refers to actions to prevent or reduce greenhouse gas emissions to address the underlying causes of climate change. Climate change adaptation refers to the actions required to manage the effects of unavoidable expected climate change.

nor include any measures to prepare for current or future impacts of climate change across the district. The council has set objectives to achieve 'better protection against extreme climate events' and 'audit our own buildings, homes and operations against the impact of climate change, implement necessary actions and share this knowledge with others'.

2.6. The council is developing its climate adaptation work in line with the best practice approach set out within the Local Partnerships' Climate Adaptation Toolkit (see Figure 1). The Climate Adaptation Toolkit sets out a five-stage process to guide local authorities through their climate adaptation planning culminating in the development of a dedicated climate adaptation strategy and action plan.

2.7. We are using this toolkit to undertake a Climate Risk and Vulnerability Assessment (CRVA) to assess the ways in which the council's services and assets may be impacted by current and future climate risks and hazards. It also considers residents, communities, businesses, and infrastructure beyond the council's direct control. The assessment will be used to inform the council's approach to planning for and or implementing any adaptation measures. This report provides a summary of work completed to date.

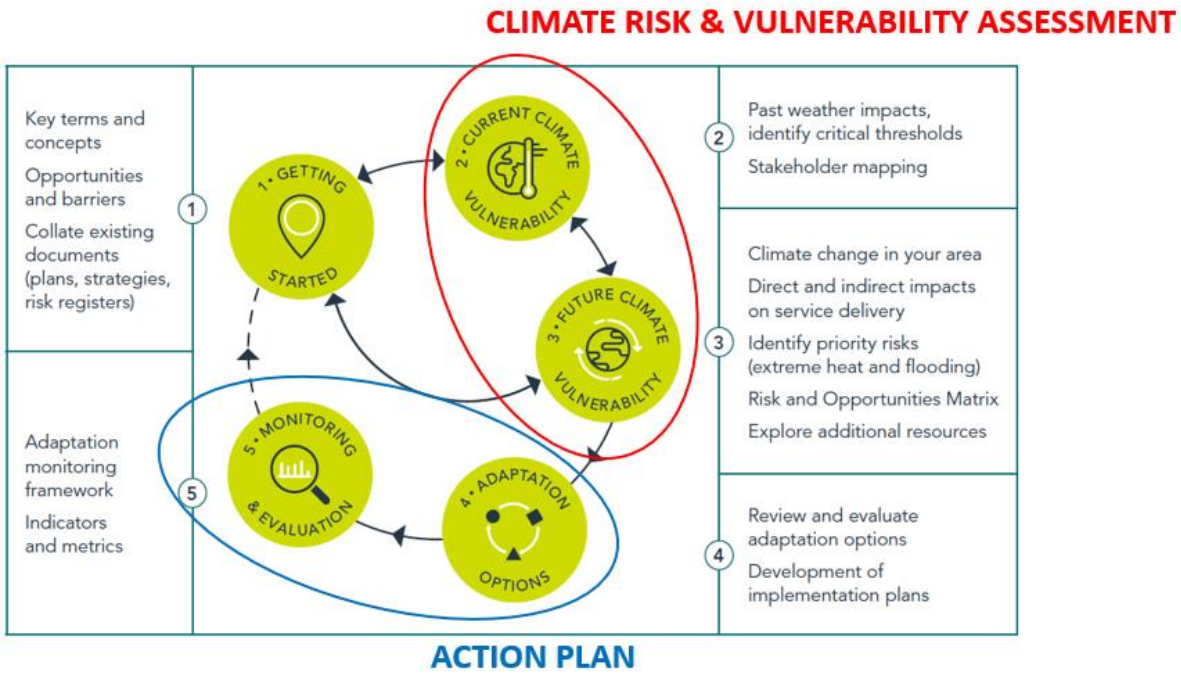


Figure 1: The five-stage approach to climate adaptation set out within Local Partnerships' Climate Adaptation Toolkit. Stages 1-3 will be completed within the CRVA. Stages 4-5 will be developed in the next financial year and will be informed by the CRVA.

Climate change in Winchester

2.8. The past decade (2015 – 2024) has been the warmest on record. Climate projections for the Winchester district broadly align with UK-wide projections. Winters are expected to become milder and wetter, whilst summers are

projected to get hotter, and drier. This shift reflects a clear trend toward more frequent and intense weather events, which is causing damage to infrastructure and impacting communities, businesses, the natural environment and essential services. For more details, see Appendix A.

Methodology

2.9. The Climate Adaptation Toolkit is based around the 61 climate change risks and opportunities identified in the government's Climate Change Risk Assessment (CCRA3) and is designed to help local authorities assess their vulnerability to each of these risks. The 61 risks are grouped into five thematic risk areas: Business and Industry; Health, Community and the Built Environment; Infrastructure; and Natural Environment and Assets; and International Dimensions.

Step 1: Risk screening

2.10. The first stage of the assessment is to undertake an initial screening exercise to identify which risks and opportunities are most relevant to the Winchester district and should be shortlisted for more detailed assessment. Following our initial screening exercise, 41 risks have been identified as relevant to the based on local context (see Appendix B). Risks related to International Dimensions and any coastal or marine related risks were screened out at this stage as these are not relevant to the Winchester district.

Risk Category	Total number of risks	Number of risks for Winchester	Reason for scoping out
Business & Industry	7	6/7	Coastal risk
Health, Communities & the Built Environment	13	12/13	Coastal risk
Infrastructure	13	9/13	Coastal risk
International Dimensions	10	0/10	Not applicable – scoped out
Natural Environment & Assets	18	14/18	Coastal risk

Table 1: Total number of risks scoped in for further assessment following the initial screening exercise.

Step 2: Detailed risk assessment

2.11. We are currently in the process of conducting a detailed assessment of each of the shortlisted risks and understanding the vulnerability of council services, residents, communities, businesses, and infrastructure to these risks. To ensure that the CRVA aligns with the council's corporate risk management policy, all risks are assessed using the council's risk matrix. Using the matrix, each risk is assessed on a four-point scale on the likelihood or probability of the risk occurring and the impact caused should the risk occur being rates between low and significant. RAG (red-amber-green) ratings are used to indicate the overall risk score.

2.12. We are also using different types of data to assess the likelihood and impact of the 41 shortlisted risks on council services and the wider district:

- Qualitative approach: all climate risks have been assessed using some element of qualitative data, based on a review of existing resources such as reports and evidence from past events. This has helped to provide wider context in cases where spatial and quantitative data was used.

- Quantitative approach – quantitative data has been extracted from tools such as the UK Climate Risk Indicator Portal (UK-CRI), the Met Office Local Authority Climate Service (LACS), and the Local Climate Adaptation Tool (LCAT) to identify how future hazards may impact the district in the future. Examples of these include the average annual number of amber heat health alerts raised and the number of very high fire risk days according to the Met Office Fire Severity Index.

- Geospatial approach – where geospatial data is available, geospatial analysis has been undertaken to identify vulnerable or exposed communities and assets across the district.

2.13. The CRVA considers both present day and future climate impacts and two future scenarios are being explored assuming the impact of a +2°C and +4°C warming above pre-industrial levels by 2100. This aligns with the CCRA3 which states that "the UK must adapt to a minimum average global temperature risk of between +1.5°C and +2°C for the period 2050-2100 and consider the risks of up to a +4°C warming scenario".

2.14. For each of the two scenarios, risks are also assessed for three different time periods, as evidence allows:

- Present: risk and opportunities from the range of possible weather and climate conditions possible today
- 2050s: a mid-century reference period, centred on 2055, consistent with the end of the period of 'inevitable' climate change, regardless of the trajectory of global greenhouse gas emissions over the next few decades.
- 2080s: a late-century reference period, centred on 2085, used to consider the implications of further climate change beyond the middle of the century, particularly for long-lived assets.

Example of risks

2.15. The table below shows an example of two risks within the Business & Industry climate risk category that have been assessed in more detail as part of the CRVA for the Winchester district (see Figure 3). As outlined these risks have been assessed for the two temperature projections at three time periods.

					2025	Future risk score (2050s)		Future risk score (2080s)	
Risk ID	**Risk / Opportunity**	**Climate variable**	**Likelihood**	**Impact**	**Present day risk**	**2C**	4C	**2C**	4C
B01	Risks to businesses from flooding	Ground water flooding	4	1	4	8	12	12	16
		Flooding from rivers and the sea	3	1	3	6	8	9	12
		Surface water flooding	4	2	8	9	12	12	16
B03	Risks to business from water scarcity	Water scarcity	2	1	2	6	6	6	8

Figure 3: Extract from the CRVA showing the risk scores for two Business & Industry risks.

2.16. Within the CRVA, the risk matrix will be supported by a detailed narrative which provides an explanation of the overall score for each risk, and a summary of the data sources used to underpin the assessment. Each risk will also be supported with further details around how vulnerability differs spatially across the district and aim to identify which assets, businesses, communities, and neighbourhoods may be most vulnerable to each specific risk.

2.17. For example, datasets such as the Neighbourhood Flood Vulnerability Index produced by Climate Just are being used to identify communities that are most vulnerable to specific climate risks such as flooding (see Figure 4).

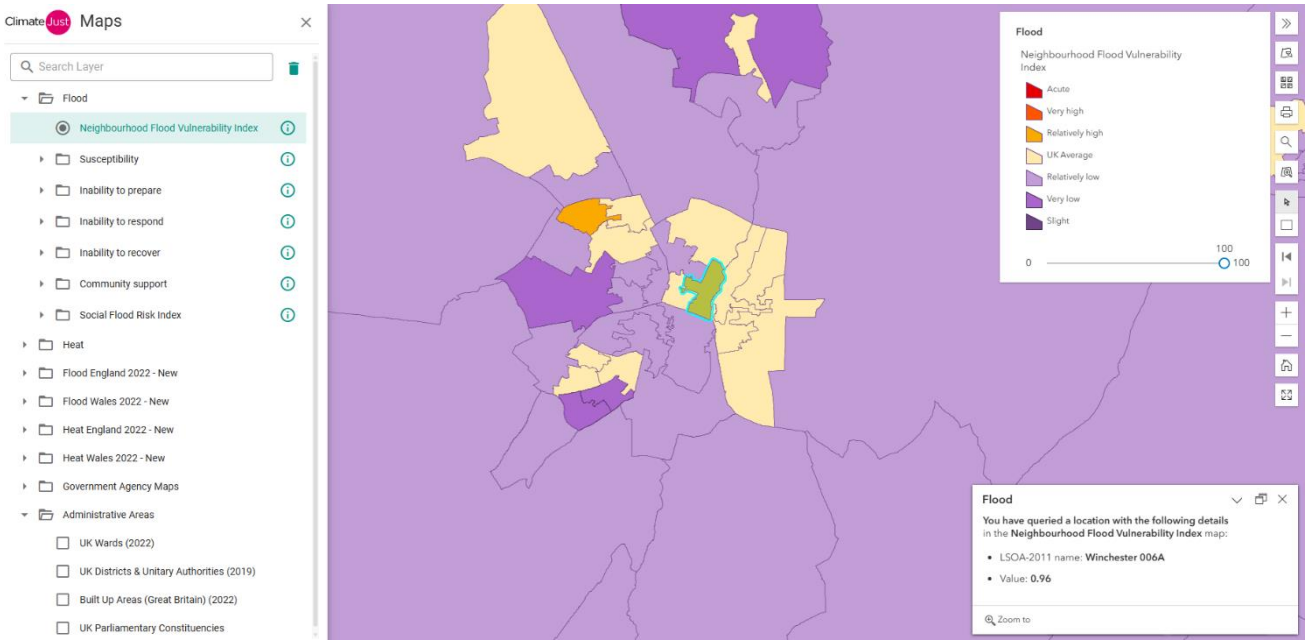


Figure 4: A map showing Neighbourhood Flood Vulnerability Index for LSOAs within the Winchester City Centre.

Stakeholder engagement

2.18. To ensure that the CRVA provides an accurate assessment of the local impact of climate risks within Winchester district, the Sustainability team are engaging with a number of internal and external stakeholders. Workshops have already taken place with several teams and services across the council to understand the specific risks to their services and capture any insights and data to inform the assessment (see Table 3).

Key Internal Stakeholders	
Places - Waste Collection & Recycling, Grounds maintenance contract, Transport, Engineering, Parking and W/Cs	**Housing** – Council housing and sheltered housing, private sector housing. Homelessness and Rough Sleeping.
Economy & Community – Tourism, Community & Wellbeing, Natural environment	**Regulatory** - Public Protection - Environmental health,
Asset Management – Corporate Property and Estates, New Homes	Emergency Planning

Table 3: List of key internal stakeholders that have been consulted as part of the development of the CRVA.

2.19. Several key external stakeholders will also be consulted with to help understand the specific risks to local residents, communities, businesses, and infrastructure (see Table 4).

Key External Stakeholders		
Environment Agency	South Western Railway	Hampshire County Council
Natural England	Southern Water	National Health Service
South Downs National Park	Scottish and Southern Electricity Networks	Hampshire Fire and Rescue services
Winchester Downs Cluster	Southern Gas Networks	Hampshire County Council
Hampshire & Isle of Wight Wildlife Trust	National Highways	University of Southampton
University of Winchester	Winchester Action on Climate	Winchester to River Test Farm Cluster
Winchester Business Improvement District		

Table 4: List of key external stakeholders that will be consulted as part of the development of the CRVA.

Timescales

2.20. The initial climate risk screening and validation stages have already been completed. The development of a draft CRVA is currently in progress and this is due for completion in 2026.

Stages

Completed

1. Climate risk screening
2. Climate Risk screening validation

January – February 2026

3. Draft Climate Risk and Vulnerability Assessment
4. Stakeholder Consultation (Internal and External)

March-May 2026

5. Final Draft of Climate Risk and Vulnerability Assessment

2.21. **Input from HEP Committee**

2.22. The purpose of this report is to provide a progress update on the council's climate adaptation work and invite the HEP Committee to provide feedback to inform and shape the process of developing the CRVA. The Committee are asked to consider the following questions and provide their feedback:

1. Which climate risks do you believe will have the greatest impact on the Winchester district?
2. Which council services do you believe will be most impacted by climate change in the future?

3. Which residents, communities and businesses are most vulnerable to climate hazards such as flooding, heatwaves etc.?
4. Are there any other key external stakeholders that we should engage with to inform the assessment?

3 OTHER OPTIONS CONSIDERED AND REJECTED

3.1 Due to the scope of this study, all risks in the International Dimensions category and any coastal risks were screened out.

BACKGROUND DOCUMENTS:-

Previous Committee Reports:-

None

Other Background Documents:-

None

APPENDICES:

Appendix A

APPENDIX A

The last decade (2015-2024) was the warmest on record. In the UK, the most recent State of the UK Climate 2024 report shows that extreme temperature and heavy rainfall are becoming the norm. Winters are getting wetter[2] and the number of frost days has reduced by approximately a quarter since the 1980s.

Extreme Weather Events

These national findings are reflected at a local level; the graph in Figure 1 below shows that since 2014, we have seen an increase in the number of storms and gales, causing considerable damage to infrastructure, impacting local communities and services. We are also witnessing more summer heatwaves and an increased intensity in heavy rainfall events. The latter has a major impact due to surface water flash flooding on Winchester high street and in the wider district.

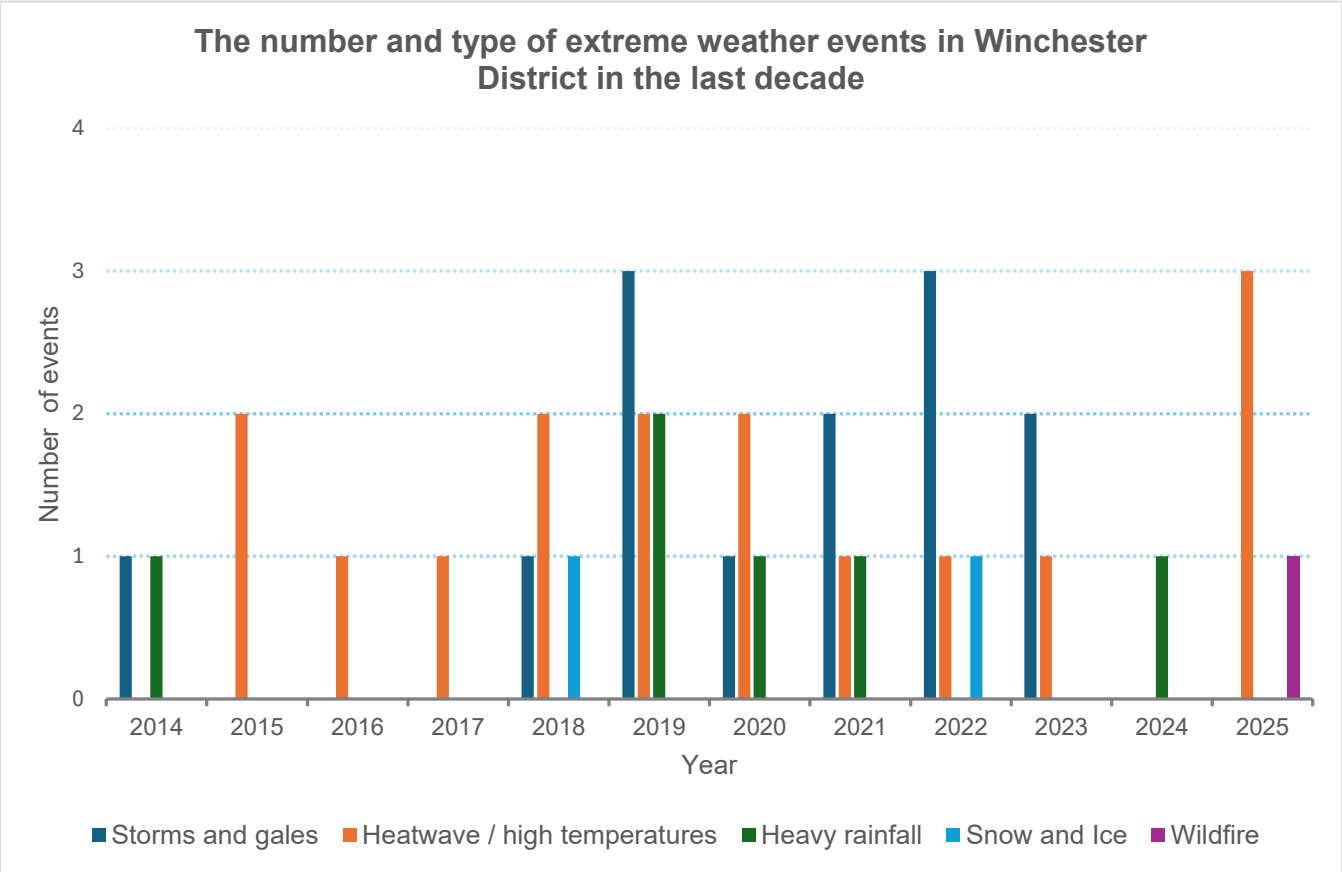


Figure 1: Bar graph showing the number and type of extreme weather events that have occurred and had an impact in Winchester district over the last decade. The information was based on MET office data and reports in the media.

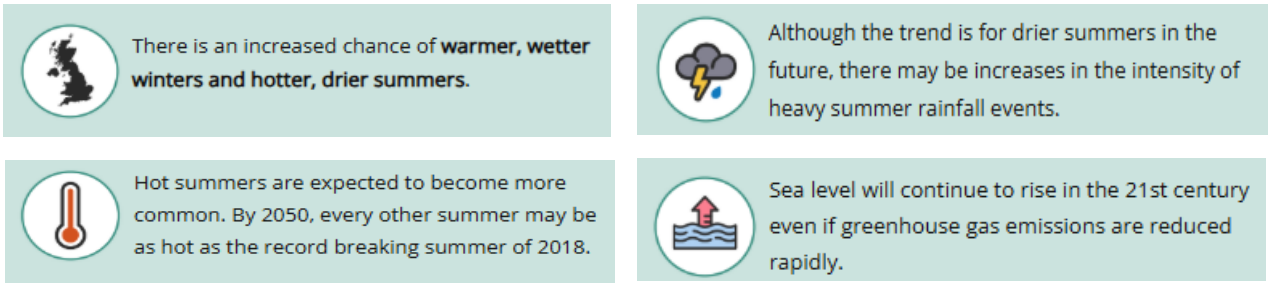
[2] October 2023 to March 2024 was the wettest winter half-year on record. In a series from 1767, six of the ten wettest winter half-years (October to March) for England and Wales have been in the 21st Century so far.

These extreme weather events have had a considerable impact on the health and wellbeing of residents, businesses, the natural environment and on the local economy of the Winchester district.

Future climate change projections

To assess climate risks, it is crucial to first identify the likely climate change hazards facing Winchester, such as increased heat and changes in rainfall patterns.

Future climate change projections depend on how much greenhouse gas the world emits. Currently, UK modelling projections indicates that:



According to the UK's third Climate Change Risk Assessment (CCRA3), published in 2021, the most likely extreme weather events the country will experience are:

- Storms - causing structural damage, disruption to essential infrastructure and travel
- Storm surges - causing flooding and coastal erosion
- Heavy rain - leading to fluvial and surface water flooding
- Heatwaves - causing health issues for vulnerable people
- Extremely hot days - causing heat stroke and disruption to travel and work
- Cold spells - leading to travel disruption and potential failure of infrastructure, such as power supplies
- Extended dry periods - leading to pressure on water supplies

Climate projections for the Winchester district broadly align with UK-wide projections. Winters are expected to become milder and wetter, whilst summers are projected to get hotter, and drier. Table 1 below provides a summary of the projected changes in climate, including increased heat and changing rainfall patterns, for the Winchester district for several Global Warming Levels (GWLs):

		0.6°C GWL Baseline 1981-2000	1.0°C GWL Recent Past 2001-2020	1.5°C GWL Paris Agreement	2°C GWL Guidance: Prepare	4°C GWL Guidance: Assess risks
	TEMPERATURE	°C	°C	°C change	°C change	°C change
	Summer Maximum Temperature	29.4 28.8 to 29.6	31.4 30.2 to 32.6	+3.0 +1.0 to +3.6	+3.5 +2.5 to +5.1	+7.3 +6.8 to +9.3
	Summer Average Temperature	16.1 16.1 to 16.2	17.3 16.9 to 17.8	+1.4 +1.1 to +2.2	+2.2 +1.5 to +2.8	+4.5 +4.0 to +5.6
	Winter Average Temperature	4.7 4.7 to 4.7	5.5 5.0 to 5.6	+1.0 +0.7 to +1.2	+1.3 +0.7 to +1.5	+2.8 +1.9 to +3.2
	Winter Minimum Temperature	-7.0 -7.7 to -6.8	-6.3 -6.9 to -4.6	+1.6 +0.5 to +2.8	+1.9 +1.0 to +3.1	+3.7 +3.0 to +5.2
	Annual Average Temperature	10.2 10.2 to 10.2	11.0 10.9 to 11.3	+1.1 +1.0 to +1.3	+1.7 +1.3 to +1.9	+3.4 +3.0 to +3.9
	PRECIPITATION	mm/day	mm/day	% change	% change	% change
	Summer Precipitation Rate	1.74 1.73 to 1.75	1.68 1.41 to 1.87	-5 -17 to +4	-13 -33 to -9	-34 -52 to -28
	Winter Precipitation Rate	2.71 2.69 to 2.72	2.89 2.63 to 3.28	+7 -5 to +22	+12 -6 to +19	+27 +13 to +37

Table 2: The projected changes in climate for the Winchester district for different Global Warming Levels (GWLs) (Source: Met Office Local Authority Climate Service)

APPENDIX B

The table below lists all 61 risks in the Climate Risk and Vulnerability Assessment (CRVA), which ones have been scoped in / out for Winchester district. The urgency column is copied from the UK government's climate change risk assessment.

Risk ID	Risk / Opportunity	Scoped in / out of CRVA	Reason for scoping out	Urgency (CCRA defined)
B01	Risks to businesses from flooding	In		HIGH
B02	Risks to businesses and infrastructure from coastal change from erosion, flooding and extreme weather events	Out	Not applicable	HIGH
B03	Risks to business from water scarcity	In		MED
B04	Risks to finance, investment and insurance including access to capital for businesses	In		LOW
B05	Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments	In		MED
B06	Risks to business from disruption to supply chains and distribution networks	In		HIGH
B07	Opportunities for business from changes in demand for goods and services	In		MED
H01	Risks to health and wellbeing from high temperatures	In		HIGH
H02	Opportunities for health and wellbeing from higher temperatures	In		MED
H03	Risks to people, communities and buildings from flooding	In		HIGH
H04	Risks to the viability of coastal communities from sea level rise	Out	Not applicable	HIGH
H05	Risks to building fabric	In		MED
H06	Risks and opportunities from summer and winter household energy demand	In		HIGH
H07	Risks to health and wellbeing from changes in air quality	In		MED
H08	Risks to health from vector-borne disease	In		HIGH
H09	Risks to food safety and food security	In		MED
H10	Risks to water quality and household water supplies	In		MED
H11	Risks to cultural heritage	In		HIGH
H12	Risks to health and social care delivery	In		HIGH
H13	Risks to education and prison services	In		HIGH

Risk ID	Risk / Opportunity	Scoped in / out of CRVA	Reason for scoping out	Urgency (CCRA defined)
I01	Risks to infrastructure networks (water, energy, transport, ICT) from cascading failures	In		HIGH
I02	Risks to infrastructure services from river, surface water and groundwater flooding	In		HIGH
I03	Risks to infrastructure services from coastal flooding and erosion	Out	Not applicable	MED
I04	Risks to bridges and pipelines from flooding and erosion	In		MED
I05	Risks to transport networks from slope and embankment failure	In		HIGH
I06	Risks to hydroelectric generation from low or high river flows	Out	Not applicable	MED
I07	Risks to subterranean and surface infrastructure from subsidence	In		MED
I08	Risks to public water supplies from reduced water availability	In		HIGH
I09	Risks to energy generation from reduced water availability	Out	Not applicable	MED
I10	Risks to energy from high and low temperatures, high winds, lightning	In		MED
I11	Risks to offshore infrastructure from storms and high waves	Out	Not applicable	LOW
I12	Risks to transport from high and low temperatures, high winds, lightning	In		HIGH
I13	Risks to digital from high and low temperatures, high winds, lightning	In		MED
ID01	Risks to UK food availability, safety, and quality from climate change overseas	Out	Not applicable	HIGH
ID02	Opportunities for UK food availability and exports from climate impacts overseas	Out	Not applicable	LOW
ID03	Risks and opportunities to the UK from climate-related international human mobility	Out	Not applicable	LOW
ID04	Risks to the UK from international violent conflict resulting from climate change overseas	Out	Not applicable	HIGH
ID05	Risks to international law and governance from climate change overseas that will impact the UK	Out	Not applicable	HIGH
ID06	Opportunities from climate change (including Arctic ice melt) on international trade routes	Out	Not applicable	LOW

Risk ID	Risk / Opportunity	Scoped in / out of CRVA	Reason for scoping out	Urgency (CCRA defined)
ID07	Risks associated with international trade routes	Out	Not applicable	HIGH
ID08	Risk to the UK finance sector from climate change overseas	Out	Not applicable	LOW
ID09	Risk to UK public health from climate change overseas	Out	Not applicable	HIGH
ID10	Systemic risk arising from the amplification of named risks cascading across sectors and borders	Out	Not applicable	HIGH
N01	Risks to terrestrial species and habitats from changing climatic conditions and extreme events, including temperature change, water scarcity, wildfire, flooding, wind, and altered hydrology (including water scarcity, flooding and saline intrusion).	In		HIGH
N02	Risks to terrestrial species and habitats from pests, pathogens and invasive species	In		HIGH
N03	Opportunities from new species colonisations in terrestrial habitats	In		MED
N04	Risk to soils from changing climatic conditions, including seasonal aridity and wetness.	In		HIGH
N05	Risks and opportunities for natural carbon stores, carbon sequestration from changing climatic conditions, including temperature change and water scarcity	In		HIGH
N06	Risks to and opportunities for agricultural and forestry productivity from extreme events and changing climatic conditions (including temperature change, water scarcity, wildfire, flooding, coastal erosion, wind and saline intrustion).	In		HIGH
N07	Risks to agriculture from pests, pathogens and invasive species	In		HIGH
N08	Risks to forestry from pests, pathogens and invasive species	In		HIGH
N09	Opportunities for agricultural and forestry productivity from new/alternative species becoming suitable.	In		MED
N10	Risks to aquifers and agricultural land from sea level rise, saltwater intrusion	In		MED
N11	Risks to freshwater species and habitats from changing climatic conditions and extreme events, including higher water temperatures, flooding, water scarcity and phenological shifts.	In		HIGH
N12	Risks to freshwater species and habitats from pests, pathogens and invasive species	In		HIGH

Risk ID	Risk / Opportunity	Scoped in / out of CRVA	Reason for scoping out	Urgency (CCRA defined)
N13	Opportunities to freshwater species and habitats from new species colonisations	In		LOW
N14	Risks to marine species, habitats and fisheries from changing climatic conditions, including ocean acidification and higher water temperatures.	Out	Not applicable	HIGH
N15	Opportunities to marine species, habitats and fisheries from changing climatic conditions	Out	Not applicable	MED
N16	Risks to marine species and habitats from pests, pathogens and invasive species	Out	Not applicable	HIGH
N17	Risks and opportunities to coastal species and habitats due to coastal flooding, erosion and climate factors.	Out	Not applicable	HIGH
N18	Risks and opportunities from climate change to landscape character	In		MED